

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the subject application.

Listing of Claims:

What is claimed is:

1. (currently amended) A method of improving the performance of organic conversion coatings, whose primary ingredients are polymeric resins, comprising:

a. forming a first solution including an organosulfur compound comprising at least one compound selected from the group consisting of alkyl thiols, aryl thiols, alkyl-aryl thiols, sulfides, disulfides, thiocarbamates, ~~dithiocarbamates~~, thiophenols, mercaptopyridines, mercaptoanilines, thiophenes or thiophosphates, in a first solvent,

b. mixing the first solution in which said organosulfur compound is dissolved with a second solution including said polymeric resins dissolved in a second solvent,

c. coating a metallic substrate with the mixture of the solutions containing said organosulfur compound and said polymeric resins,

d. curing the metallic substrate coated with said mixture of the solutions, and thereby increasing the corrosion resistance of said metallic substrate without using chrome.

2. (cancelled)

3. (previously presented) The method according to claim 1 wherein said organosulfur compound is an alkanethiol with a general formula $R(CH_2)_nSH$, where R is a terminal group selected from the group consisting of H-, NH_2 -, $HOOC$ -, and HO -, and n represents the number of hydrocarbons, which can range from 10 to 21.

4. (original) The method according to claim 1 wherein said organosulfur compound is 1-octadecanethiol.

5. (previously presented) The method according to claim 1 wherein said polymeric resins are selected from the group consisting of acrylic, acrylic-urethane, epoxy, polyester, epoxy-polyester or fluorovinyl polymers, and combinations thereof.

6. (previously presented) The method according to claim 1 wherein said metallic substrate includes a substrate selected from the group consisting of hot rolled and pickled steel sheet, cold-rolled steel sheet, stainless steel sheet, hot-dipped metallic coated steel sheets, electroplated metallic coated steel sheets, aluminum sheets and aluminum alloy sheets, zinc sheets, zinc alloy sheets, copper sheets, copper alloy sheets, gold, and silver.

7. (previously presented) The method according to claim 1 wherein said metallic substrate includes coatings of one or more layers selected from the group consisting of lead, lead alloy, nickel, nickel alloy, zinc, zinc layer, tin, and tin alloy.

8. (previously presented) The method according to claim 1 wherein said first solvent for said organosulfur compound is selected from the group consisting of alcohols, acetone, turpentine, benzene, ethyl and butyl acetate, toluene, petroleum ester, xylene, alkane, mineral spirit, and water.

9. (previously presented) The method according to claim 8 wherein said first solvent is selected from the group consisting of ethanol, 1-propanol, 1-butanol, and mixtures thereof.

10. (previously presented) The method according to claim 1 wherein the concentration of said organosulfur compound in said polymeric resins is in the range of 0.001–0.5 moles per liter.

11. (previously presented) The method according to claim 1 wherein said metallic substrate is coated with said mixture of the solutions containing said organosulfur compound and said polymeric resins by means of a roll or a bar coater, cured at a temperature in the range of 100 to 350°C to obtain a desired coating thickness.

12. (currently amended) A method of improving the performance of organic conversion coatings, whose primary ingredients are polymeric resins, comprising:

a. mixing an organosulfur compound comprising at least one compound selected from the group consisting of alkyl thiols, aryl thiols, alkyl-aryl thiols, sulfides, disulfides, thiocarbamates, ~~dithiocarbamates~~,—thiophenols, mercaptopyridines, mercaptoanilines, thiophenes or thiophosphates, with a polymeric resin, wherein said mixture includes said organosulfur compound and said polymeric resin,

b. coating a metallic substrate with said polymeric resin containing said organosulfur compound,

c. curing the metallic substrate coated with said mixture of the solutions, and thereby increasing the corrosion resistance of said metallic substrate without using chrome.

13. (original) A method according to claim 12 wherein said metallic substrate is electrogalvanized steel.

14. (cancelled)

15. (previously presented) The method according to claim 12 wherein said polymeric resins are selected from the group consisting of acrylic, acrylic-urethane, epoxy, polyester, epoxy-polyester or fluorovinyl polymers, and combinations thereof.